2006

Do Animals Use Language?

Donna Jo Napoli
Swarthmore College, dnapoli1@swarthmore.edu

14

Do animals use language?

Donna Jo Napoli

Do animals talk among themselves? If so, what systems do they use? And how do they differ from human language?

Parrots talk. So the answer is yes, animals use language, right? Well, not so fast. There are two issues here, both interesting from a linguistic point of view. One is whether animals use language among themselves; the other is whether animals can learn human language. Before addressing them, we have to decide what should count as language.

Human languages have well-defined characteristics. First, they are systematic; that is, they all have rules that we call grammar. ('Chased dog the nasty a cat' is made of English words, but it isn't an English sentence—the words have been thrown together randomly, rather than according to the rules of English syntax.)

Human language is also innate. Children are born hard-wired to acquire language. No one needs to teach them. This ability depends on the plasticity of the infant brain, though: a child not exposed to language by the age of five may never fully acquire it.

A third striking characteristic is what linguists call 'displacement'—humans can talk about objects that aren't present, like the man in this sentence: 'The weird man you followed last week told me he's considering writing an exposé of existentialism.' Still another feature of human language is its ability to talk about abstract notions—like 'weirdness', 'exposé', and 'existentialism'. Finally, the 'weird man' sentence is one I never used before I wrote it just now. You probably never heard it before, either. All human languages have the ability to create new expressions.

If language necessarily involves all five of those criteria, we have to say that animals do not use language, even though they communicate with one another in ways that share some of its characteristics.

Bees have elaborate dances to tell other bees the location and quality of a food source. The dances have regulated paths and speeds. The orientation of the dancer's head and the vigor of its waggle are significant. Clearly these dances follow rules. They are about food that isn't present (so we have displacement) and about how good the food is (so we have abstraction). And researchers seem to assume that dancing is innate. But creativity is lacking; the amount of information bees can pass on is extremely limited. They cannot communicate, for example, that a new food source is near another well-known one, or that other bees are already approaching the source so that the hive had better hurry if they want any.

Birdsong has also rules. Robin song, for example, has motifs which have to occur in a certain order (a kind of grammar) or other birds will find them unintelligible. The ability to sing is innate, and birds not exposed to song within the first several months of life never develop typical courtship-territorial song. Birdsong does convey emotion, so to that extent it refers to abstractions. We have no evidence, however, that birdsong allows displacement (birds never seem to tell each other that something scary happened to

them on the other side of the barn, for example); nor do they make up new songs.

Whales and dolphins sing and whistle. The form of their songs follows rules (the complex songs of some whales can go on all day long), and they can convey limited meaning (distress or warning calls), but there's no evidence of the novelty or creativity characteristic of human language. The songs are signatures, simply identifying the members of a pod.

Chimpanzees have grunts, barks, pants, wails, laughs, squeaks, hoots, and calls. They use them to alert others to the location of food sources, to announce a successful kill, to express alarm or danger, to identify themselves, or to express satisfaction. Their postures, facial expressions, and limb gestures play an even greater role in communication. But nothing so far has indicated that any of this follows a set of grammar-like rules.

Turning to the second question, there have been many attempts to teach human language to birds, sea mammals, and primates.

Alex, an African grey parrot that Dr. Irene Pepperberg of the University of Arizona has worked with, has an extensive vocabulary. He can identify objects with English words, by their material, color, shape, and number. He can ask for food that isn't present. He apologizes when he's misbehaved. He is quite facile at language and clearly understands what some words mean. Yet, his verbal behavior is erratic in ways unlike even a very young human's.

Dolphins have been taught to respond to hand gestures and are able to interpret new utterances correctly. For example, dolphins who learned that the sequence of gestures PERSON SURFBOARD FETCH means 'bring the surfboard to the person' were able to interpret SURFBOARD PERSON FETCH as 'bring the person to the surfboard'—and quite easily. They recognized a system and used it.

Chimpanzees, gorillas, and bonobos (closely related to chimps) have been taught to use and respond to sign language. The famous chimp Washoe, who learned a simple sign language from her trainers, adopted a baby named Loulis; and Loulis is said to have learned to sign from Washoe. A gorilla named Koko is reported to have amassed a vocabulary of over a thousand signs. A bonobo named Kanzi, featured in cover stories in *Time*, *Newsweek*, and *National Geographic* because of his language-like ability, learned to use a keyboard with symbols on it. We are told he could understand over five hundred spoken English words and use about two hundred keyboard symbols to represent set words or actions.

While experiments in teaching human language to animals are suggestive, they leave the basic question unresolved. How great is the ability of animals to use language? Kanzi demonstrates that primates can learn language to some extent; but even if animals have such a capacity, they do not use it among themselves. There seems to be no chimpanzee grammar in the jungle. Nor is there evidence that animal communication systems can express new ideas, a key feature of human language. Language remains the most profound distinction between animals and humans.

About the author

Donna Jo Napoli, trained at Harvard and MIT, is Professor of Linguistics at Swarthmore College. She publishes widely in theoretical linguistics, primarily on the structure of Italian and, more recently, of American Sign Language (ASL). Her books include *Language Matters* (Oxford, 2003) and *Linguistics: An Introduction* (Oxford, 1996). She also writes novels for children: http://www.donnajonapoli.com

Suggestions for further reading

In this book: Chapters discussing grammar include 11 (grammar in general), 12 (universal grammar), 13 (infant language acquisition), and 22 (language deprivation).

Elsewhere:

Anderson, Steve. *Dr. Doolittle's Delusion: Animals and the Uniqueness of*

Human Language (Yale University Press, 2004). Clarifies the distinction between communication and language and argues that while animals have the former, they do not have the latter.

Web sites:

http://www.cwu.edu/~cwuchci/
The site of Central Washington University's Chimpanzee and Human Communication Institute, where scientists use ASL with chimps.

http://www.bga.com/~pixel/fun/alex.htm
An article by Kenn Kaufman about Alex the parrot and his communication with humans.

http://polarization.com/bees/bees.html
About bee dances.